

CLAIMS

What is claimed is:

1. A method of controlling forward link power during intergenerational soft handoff procedures in a wireless communication system, wherein the wireless communication system includes a plurality of base stations in communication with at least one mobile station, wherein the base stations transmit information to the at least one mobile station via a forward link, and wherein the base stations receive information from the at least one mobile station via a reverse link, and wherein each base station is in communication with a mobile station controller (MSC), and wherein a selected mobile station is handed off from a serving communication system to a target communication system, and wherein the serving and target systems comprise different generational CDMA communication systems, comprising the steps of:
- a) determining a forward link transmit power of a serving communication system;
- b) calculating a forward link transmit power of a target system based upon the forward link transmit power of the serving communication system determined during step (a); and
- c) controlling the forward link transmit power of the target system based upon the forward link transmit power calculated during step (b).
2. The method of controlling forward link power during intergenerational soft handoff procedures as defined in Claim 1, wherein the serving communication system comprises a serving base station.
3. The method of controlling forward link power during intergenerational soft handoff procedures as defined in Claim 2, wherein the target communication system comprises a target base station.

4. The method of controlling forward link power during intergenerational soft handoff procedures as defined in Claim 1, wherein the step (a) of determining a forward link transmit power comprises determining an actual transmit power of the serving system.
5. The method of controlling forward link power during intergenerational soft handoff procedures as defined in Claim 4, wherein the step (b) of calculating a forward link transmit power of a target system comprises subtracting an ISHO offset from the actual transmit power of the serving system.
6. The method of controlling forward link power during intergenerational soft handoff procedures as defined in Claim 5, wherein the ISHO offset is determined by a selected Quality of Service (QoS).
7. The method of controlling forward link power during intergenerational soft handoff procedures as defined in Claim 5, wherein the calculating step (b) is performed at the serving system and transmitted to the target system using a serving communication link and a target communication link.
8. The method of controlling forward link power during intergenerational soft handoff procedures as defined in Claim 5, wherein the calculating step (b) is performed by an MSC associated with the serving and target systems, and subsequently transmitted to the target system using a target system communication link.
9. The method of controlling forward link power during intergenerational soft handoff procedures as defined in Claim 5, wherein the calculating step (b) is performed at the target communication system.

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- (10.) The method of controlling forward link power during intergenerational soft handoff procedures as defined in Claim 1, wherein the method further includes the step (d) of performing a reverse link hard handoff procedure.
- (11.) The method of controlling forward link power during intergenerational soft handoff procedures as defined in Claim 1, wherein the forward link transmit power is controlled during an intergenerational soft handoff procedure, and wherein the handoff procedure comprises a soft handoff.
- (12.) The method of controlling forward link power during intergenerational soft handoff procedures as defined in Claim 1, wherein the forward link transmit power is controlled during an intergenerational soft handoff procedure, and wherein the handoff procedure comprises a softer handoff.
- (13.) The method of controlling forward link power during intergenerational soft handoff procedures as defined in Claim 1, wherein the forward link transmit power is controlled during an intergenerational soft handoff procedure, and wherein the handoff procedure comprises a soft-softer handoff.
14. The method of controlling forward link power during intergenerational soft handoff procedures as defined in Claim 5, further including the steps of:
- i) calculating a power transmit value based upon information obtained from a plurality of forward power control commands transmitted by a selected mobile station to the serving system; and
 - ii) adjusting the forward link transmit power of the target system based upon the power transmit value calculated in step (i).

15. The method of Claim 14, wherein the step (i) of calculating a power transmit value comprises the steps of:

- a) determining if a selected mobile station is handed down from a 3G serving system to a 2G target system;
- b) calculating the power transmit value based upon a statistical average of transmit power settings of the serving base station forward traffic channel, and transmitting the power transmit value to a 2G target base station if the mobile station is determined to be handed down during step (a); and
- c) if the selected mobile station is not handed down, calculating the power transmit value based upon a plurality of forward power control commands transmitted to a 3G target base station.

16. The method of Claim 15, wherein the step (b) of calculating the power transmit value based upon a statistical average of transmit power settings is determined by averaging a plurality of power control command values during a selected frame.

17. The method of Claim 15, wherein the serving system is a 3G CDMA system and the target system is a 2G CDMA system.

18. The method of Claim 17, wherein the method further includes the step of controlling the forward link transmit power through FER for a rate set 1.

19. The method of Claim 17, wherein the method further comprises the step of controlling the forward link power control through EIB reporting for a rate set 2.

20. The method of Claim 15, wherein the serving system is a 2G CDMA system and the target system is a 3G CDMA system.
21. The method of controlling forward link power during intergenerational soft handoff procedures as defined in Claim 1, wherein the step (b) of calculating a forward link transmit power of a target system includes the sub-steps of:
- a) demodulating a reverse traffic channel of the serving system, wherein the serving system comprises a 2G CDMA system; and
- b) calculating the forward link transmit power of the target system based upon information obtained from the reverse traffic channel of the 2G CDMA serving system.
22. The method of Claim 21, wherein the sub-step (a) comprises determining a power control command value of the 2G CDMA serving system.
23. The method of Claim 22, wherein the sub-step (b) comprises calculating the target forward link transmit power by subtracting an ISHO offset based upon the power control command value determined in the sub-step (a).
24. The method of Claim 21, wherein the method further includes the sub-steps of:
- i) calculating a power transmit value based upon information obtained from a plurality of forward power control commands transmitted from the mobile station to the serving system; and
- ii) adjusting the forward link transmit power of the target system based upon the power transmit value calculated in sub-step (i).

25. The method of Claim 24, wherein the sub-step (i) comprises the sub-steps of:

- a) determining whether a mobile station is handed down;
- b) calculating the power transmit value based upon a statistical average of transmit power settings of the serving base station forward traffic channel, and transmitting the power transmit value to a 2G target base station if the mobile station is determined to be handed down during sub-step (a); and
- c) if the selected mobile station is not handed down, calculating the power transmit value based upon a plurality of forward power control commands transmitted to a 3G target base station.

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26. An apparatus for controlling forward link power control during a handoff between a serving system and a target system in a CDMA communication system utilizing a plurality of base stations in communication with at least one mobile station, wherein each base station communicates with a mobile station controller, and wherein the serving system and the target system comprise different CDMA generations, comprising:
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- a) means for determining a serving forward link transmit power associated with the serving system;
- b) means, responsive to the determining means, for calculating a target forward link transmit power associated with the target system, wherein the calculated target forward link transmit power is related to the serving forward link transmit power; and
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- c) means, responsive to the calculating means, for controlling the target forward link transmit power.

27. A computer program executable on a general purpose computing device, wherein the program is capable of controlling forward link power during a handoff between a serving system and a target system in a CDMA communication system having a plurality of base stations in communication with at least one mobile station, and wherein each base station communicates with a mobile station controller, and wherein the serving system and the target system comprise different CDMA generations, comprising:
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- a) a first set of instructions for determining a forward link transmit power of a serving communication system;
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- b) a second set of instructions for calculating a forward link transmit power of a target system based upon the forward link transmit power of the serving communication system; and
- c) a third set of instructions for controlling the forward link transmit power of the target system.

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